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INCREASED MECHANIZATION OF USSR COAL MINING

In the Donets Basin, Stalinugol' Combine has mechanized coal mining beyond the prewar level. By the end of 1948 coal cutting and shooting had been mechanized 95.8 percent for the combine as a whole as against 87.7 percent in 1940. Coal transport from mine face to main shaft had been 97.9 percent mechanized, as against 93.2 percent, and coal haulage into the open had been 86.2 percent mechanized, as against 63 percent for the prewar level. Loading coal onto railroad cars had been 97.7 percent mechanized.

Courses had been organized for operators of various mine machinery as well as for maintenance personnel. Before 1 June 1949, 268 persons had completed these courses. This work in training personnel made it possible to introduce the Donbass combine successfully. At the beginning of 1949 there were only two Donbass combines operating in Stalinugol' Combine. This number had increased to 38 by May, and by August there were 50 such combines at work with the prospect of a further great increase. The highest productivity per miner was achieved in May 1949 at the 12th eastern face of Mine No 3-bis of Chistyakovantratsit Trust and amounted to 6.35 tons, as against 4.2 tons before the adoption of the combine. Donbass combines are in operation at five out of six faces at this mine. More than half the mine faces of Mine No 27 of Snezhnyanantratsit Trust, "Davydovka" Mine of Zuyevantratsit Trust "Petr" Mine of Pervomayskugol' Trust and Mine No 29 of Rutchenkovugol' Trust are also being worked by Donbass combines.

By June 1949 coal loading had been mechanized in certain mines as follows: Mine No 3-bis of Chistyakovantratsit Trust, 90.4 percent; "Krasnaya Zvezda" Mine of the same trust, 61 percent; "Davydovka" Mine of Zuyevantratsit Trust, 55 percent; Order of Lenin Mine No 13-bis of Sovetskugol' Trust, 51.8 percent; and Mine imeni Stalin of Rutchenkovugol' Trust, 44.4 percent.

Mechanization of underground haulage in the Stalinugol' Combine had increased from 83.2 percent on 1 October 1948 to 86.2 percent on 1 January 1949, and to 88.4 percent on 1 June 1949. A small electric locomotive, the Ak-2, had been introduced in connection with underground haulage. Haulage by electric locomotive had increased from 66.3 percent on 1 October 1948 to 68.8 percent on 1 January 1949, and to 73.7 percent on 1 June 1949. The stock of mine cars had also increased. On 1 October 1948, there were 545 mine cars for every 1,000 tons of daily mining, on 1 January 1949 there were 572, and on 1 June 1949 there were 594 as against 418 for the prewar period.

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In the Stalinugol' Combine coal loading onto freight cars had been mechanized 93.9 percent by 1 August 1948, and bunker and semibunker loading had been mechanized 76.3 percent. Work carried out in 1948 on the construction of bunkers and semibunkers had raised the level of mechanization of loading of freight cars to 97.7 percent, and mechanization of bunkers and semibunker loading to 82.4 percent. During 5 months of 1949, new bunkers and semibunkers had been constructed and put into use making it possible to raise the level of mechanized loading of coal onto freight cars to 98.6 percent, including bunker and semibunker loading 87.2 percent.

Labor productivity in the mines of Stalinugol' Combine had increased steadily during the postwar Five-Year Plan. In comparison with 1945, it increased 5.8 percent in 1946, 11 percent in 1947, and 14.3 percent in 1948. In 3 years and 5 months, 932 miners of the Stalinugol' Combine had fulfilled or exceeded their 5-year quotas, and 2,389 workers had completed their 4-year quotas.

Rostovugol' Combine also has made great strides in supplying its mines with new technical equipment and in mechanizing labor-consuming work. It has put into operation 55 heavy MV-60 and KMP-1 cutting machines at faces which formerly made use of two GTK cutting machines each.

Experimentation with the VPM-1 cutting and loading machine in combination with the heavy STR-30 scraper-conveyer was successfully carried on in "Zapadnaya-Kapital'naya" Mine, and created prerequisites for the complete technical reequipment of the mines.

The heavy labor of the cutters and loaders was replaced 70-75 percent by machinery, and labor productivity in each mine face became two to three times greater than previously.

Mechanization of cleaning and development work is being effected not only in mines of the Nesvetayantratsit Trust where mining and geological conditions are most favorable but also in the Shakhtantratsit, Gukovugol' and Gundorovugol' Trusts.

Two Donbass combines, four cutting and loading machines, and three stone-loading machines are operating in the mines of Gukovugol' Trust. A Donbass combine recently introduced into Mine No 20 of Gundorovugol' Trust makes possible the completion of an entire work cycle at the mine face each day.

Mechanization of mining is proceeding successfully in Ayutinskiy Mine Administration, Shakhtantratsit Trust. There are 30 STR-30 scraper-conveyers and five cutting and loading machines in operation now at Mines No 13 and 14.

Development work is mechanized in Rostovugol' Combine along with the mechanization of coal mining at the mine faces. At present 36 main development faces are equipped with 26 S-153 coal-loading machines, 8 UMP-1 rock-loading machines, and two EMP-1 machines.

During 5 months of 1949, 185 scraper-conveyers, 29 cutting and loading machines, and 20 coal-loading machines were introduced in the "Zapadnaya-Kapital'naya" Mine and in Mines No 5 and 7 of the Nesvetayantratsit Trust. Twenty-four sections were converted entirely to the conveyer system. Mechanization of loading at the mine face was carried out 52 percent during the first 5 months of 1949, 58 percent in June.

A considerable amount of work has been done on mechanizing underground haulage, which increased from 77 to 93 percent during 1948. The number of machines engaged in underground haulage also has risen sharply.

Underground trolleys are running in the mines imeni OGPU, No 5, No 7, "Nezhdannaya," imeni Kirov, imeni Gor'kiy, among others. Miners are transported along the workings to their place of work by special trains.

In the gassy mines of the combine, 43 sparkless signal units have been installed. Three condenser electric locomotives are operating in "Severnaya" Mine.

The S-153 loading machine is being extensively utilized in the Rostovugol' Combine to load coal onto railroad cars and motor trucks. The level of mechanized loading for the combine now has reached 95 percent, and will be 98.5 percent by the end of 1949.

The ash content of coal shipped was reduced 0.3 percent as compared with May 1948. During 5 months of 1949 the entire amount of coal shipped had an ash content 0.68 percent less than the norm which was in effect, and coking coal had an ash content 0.95 percent less.

The Moscow Basin had achieved mechanization of the different mining processes by May 1949 as follows: cutting, 98.6 percent; shooting, 98.6 percent; loading, 2.2 percent (before 1948, coal loading was not mechanized); transport of coal from the mine face to the main shaft, 96.6 percent; haulage into the open and loading of coal onto railroad cars, 100 percent. Utilization of cutting machines increased from 62.7 percent in 1946 to 82.2 percent in 1949, of conveyers, from 72 to 75.5 percent over the same period.

While in 1947 only old machines were used, by May 1949 the Moscow Basin operated 30 S-153 coal-loading machines, 11 VTU universal cutting machines, 7 KMP-1 heavy cutting machines, 7 VOM-2 cutting and breaking machines, 6 MP-1 combines, 2 PK-2 combines, 29 small electric locomotives, and 52 pneumatic hammers.

At present, nearly 70 percent of all operating faces are equipped with heavy cutting machines. The main processes of coal mining have been mechanized in all the mines of the Moskvougol' Combine; all phases of coal mining have been mechanized in Mine No 26 of the Stalinogorskugol' Trust and in Mine No 41 of the Donskoyugol' Trust.

Coal cleaning, a new branch of industry, was established in the Kuzbass during the postwar Five-Year Plan. Coal-cleaning plants operating within the system of the Kuzbass Combine are processing 85 percent of the coking coal mined in this area. In 1949, two new coal-cleaning plants were put into operation and three were reconstructed.

Mechanization of underground work in the Kuzbass is constantly increasing, including the most labor-consuming processes, in particular, loading at the mine face and loading coal and rock in development work.

The stock of mining machinery and mechanisms has greatly increased and includes hundreds of coal- and rock-loading machines, scraper-conveyers, cutting and drilling machines. Powerful electric locomotives have also been introduced.

Combines are being successfully tried in development work, universal cutting machines are being introduced, and it is planned to use remote control extensively in underground work.

Two S-153 machines and two UMP-1 machines are operating at present in Chernaya Gora Mine of the Stalinugol' Trust in the Kuzbass. This mine uses scraper-conveyers instead of shaker-conveyers to transport coal from the mine face along intermediate drifts.

V. I. Vorob'yev, engineer and chief of the Kuzbassugol' Combine, collaborated with F. P. Kufarev, I. S. Patrushev, and T. F. Gorbachev in designing an experimental model of the Kuzbass' combine which was intended to handle all phases of mining at the mine face, as well as furnish supports for the operating area and control of the roof. The combine consists of a stripper, moved by a winch,

an automatic sectional shield, a face scraper-conveyer, and a telescoping conveyer. All units are built into one machine and are controlled from a central switch board.

Tests with the experimental model of the Kuzbass combine were carried on under difficult circumstances. There was a considerable discharge of water from the roof along an entire 28-meter face. The seam was erratic; for a distance of 6 meters it dipped at an angle ranging from 2 to 13 degrees. A coal pillar being worked was surrounded on three sides by worked-out area and had stood for 3 months before the combine was put into operation. The roof was weak. The combine worked an experimental section 45 meters in length along the strike of the seam and was then dismantled. It had maintained complete efficiency.

During some shifts 2.4 meters of progress were achieved, and the productivity per face was 11 tons. Support and control of the roof was carried out exclusively with the aid of the combine.

The commission conducting the experiment established that the shield withstands mining pressure well and satisfactorily cuts the roof by sections, protecting the area near the face from considerable pressure. The hydraulic system with high pressure, up to 350 atmospheres, worked satisfactorily.

In addition to complete mechanization of all phases of mining at the face, support of the face and control of the roof, the combine also increases work safety.

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